Memorandum

MIAMI-DADE COUNTY

Date: October 21, 2005

To: Honorable Carlos Alvarez
Mayor

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OFFICE OF THE MAYOR

From: George M. Burgess
County Manager

Subject: Short Term Traffic Solutions

As requested in your memorandum of September 14, 2005, Public Works Department (PWD) staff has identified twenty-five (25) high-risk and/or heavily congested intersections in Miami-Dade County that can most benefit from a fast-track improvement. Attachment No. 1 is the list of sites in north-to-south order, and a description of the proposed improvement at each location. It is anticipated that Road Impact Fees will be utilized to fund these projects since these are all considered road capacity improvements. Other funding sources will be identified for Road Impact Fee Districts which do not have sufficient funding available.

The list is based on locations identified in recent MPO congestion management reports ("Congestion Management System Update 2004," "Alternate Strategies for Mitigating Traffic Congestion Updated 2005," and "Miami-Dade County Grade Separation Study June 2005") as well as the collective engineering judgment of the Traffic Signal Operations Engineers at the PWD Traffic Control Center and Traffic Design Engineers in the Traffic Engineering Division. The selected locations are dispersed throughout Miami-Dade County.

It should be noted that this list is not necessarily the 25 most congested intersections in Miami-Dade County. Instead, it is a list of heavily congested locations that can be quickly improved. We are recommending short-term solutions, all of which can be completed within the current fiscal year. Although there are significantly congested intersections which are not on the list, the solutions for those locations (e.g. flyovers, major right-of-way acquisition, roadway widening, etc.) would necessitate implementation over a more lengthy time period. This would defeat the stated goal of developing quick solutions.

It should also be noted that most of the heavily congested intersections in Miami-Dade County are on Florida Department of Transportation (FDOT) roads. As such, implementation of the proposed improvements will require the cooperation and assistance of the FDOT staff. PWD staff has already initiated efforts to arrange for such support.

The tentative schedule to implement the proposed improvements is as follows: At the end of this month, staff will prioritize the list of potential improvements based on simplicity of efforts by selecting the roads under the county's jurisdiction, followed by locations on state roads. Subsequently, the PWD will establish several work-order-based construction contracts for project implementation to be employed after the capacity in the existing contracts have been exhausted. During the months of November through February, the 25 engineering designs will be developed partially by in-house staff and partially using existing consultant contracts. Concurrently, between January through March, staff will issue 25 work orders to the miscellaneous engineering contractors and, in some cases, to PWD Field Technicians. The improvements are anticipated to be completed incrementally from February through September 2006, all within the current budgeted fiscal year.

In addition to the 25 specific intersections proposed for improvement, the PWD plans to work hand-in-hand with consultants to adjust the timing of traffic signals for five major north-south and

five major east-west corridors during this fiscal year. This major effort should result in noticeable travel time savings along those arterials. The arterials that have been tentatively selected are shown in Attachment No. 2.

Per your request, we will keep you apprised of the status of each of the aforementioned projects on a monthly basis. In the event that any complications arise, due to unforeseen circumstances which would hinder the delivery of the proposed improvement at a specific location, a substitute site, similar in nature, will be selected for implementation.

In response to a request from Commissioner Gimenez, a report was given at the October Regional Transportation Committee (RTC) regarding improvements for 25 major gridlock areas. Many of the recommendations provided in the report to the Commissioner require longer-term, more involved implementation. While, in many cases, they will take longer than one year to complete, these projects will have a significant positive impact on traffic congestion. The RTC has requested additional details at their next meeting.

I am pleased with the quality of the PWD plan of action and concur with its recommendations. Implementation of the improvements will bring immediate and visible traffic congestion relief and enhanced public safety. PWD staff will be commencing these projects immediately. Please advise if I can be of any further assistance in this regard.

Attachments

cc: Honorable Chairperson Joe A. Martinez and Members,
Board of County Commissioners
Honorable Harvey Ruvin, Clerk of Courts
Murray A. Greenberg, County Attorney
Kay Sullivan, Director, Clerk of the Board
Carlos F. Bonzon, Ph.D., P.E., Assistant County Manager
Paula J. Musto, Interim Director, Communications Department
Ester Calas, P.E., PWD Director

Attachment No. 1 -- Improvements to be made to 25 Congested Miami-Dade County Intersections

1. **William Lehman Causeway (SR-856) and Biscayne Boulevard (US-1)**
   Problem Found: Significant traffic delays in all directions.
   Cause: Westbound traffic approaching US-1 has four lanes that are used as left turn, left turn, right turn, and right turn, but there is more left turn volume than right turn volume. With more traffic in the two left turn lanes than the two right turn lanes, the traffic signal must remain green long enough to serve the left turn movement. This also impacts the amount of time north and southbound traffic have a green light.
   Recommended Solution: Change the second right-turn lane to left-and-right turn, which will allow three lanes to turn left, instead of two. By also allowing the westbound left turn movement from one of the right turn lanes, that imbalance will be eliminated, the average length of the westbound queue will be reduced, the amount of green time per cycle required for the westbound movement will decrease, and the amount of time available for the heavy north-south movements will increase, and north-south progression will improve.

2. **NW 167 Street (SR 826) and NW 2 Avenue at Golden Glades Interchange**
   Problem Found: Eastbound congestion backs into the Golden Glades Interchange.
   Cause: Eastbound right turn drivers use one of the three eastbound through (straight) lanes to make their right turns, thus delaying through traffic using that lane.
   Recommended Solution: Add an eastbound right-turn approach lane. By putting the eastbound right turners in their own lane, the eastbound through traffic will be able to flow much more smoothly and will be less likely to be delayed multiple signal cycles

3. **Sunny Isles Causeway (SR-826) and NE 26, 28, and 29 Avenues**
   Problem Found: Eastbound traffic delays.
   Cause: All four lanes of eastbound traffic must stop at a red light whenever one or more of these side street vehicles need to enter the intersection.
   Recommended Solution: By separating the eastbound through lanes from the eastbound left turn lanes with a median at the intersections, the eastbound through lanes will have a perpetual green light and can flow continuously (This solution is known as a "turbo lane," and is already used at Sunny Isles Causeway and NE 35 Avenue and about two dozen other "T" intersections throughout the County).

4. **Red Road/NW 57 Avenue and Palmetto Expressway (SR-826)**
   Problem Found: North-south traffic delays.
   Cause: North-south left turn traffic spills out of the too-short turn bays at the intersection and blocks through traffic.
   Recommended Solution: By lengthening the turn bays, the queues of left turning vehicles are less likely to back up into the through lanes, which in turn are likely to flow much more smoothly.

5. **Red Road/NW 57 Avenue and NW 165 Terrace**
   Problem Found: North-south traffic delays.
   Cause: Eastbound traffic has only two approach lanes, requiring too much "green time."
   Recommended Solution: Convert the west-side median into a third eastbound approach lane. By adding a third lane, eastbound queues will be redistributed, and thus shortened by approximately 33%. Therefore, eastbound green time can be reduced by the same 33%, and transferred to north-south green time, thereby reducing north-south delays and improving north-south progression.

6. **15900 Block of NW 7 Avenue**
   Problem Found: Northbound and westbound backups in peak periods.
   Cause: Northbound approaching traffic merges from three lanes into one, to exit the intersection in the northbound left lane, while westbound traffic turns right continuously into the northbound middle lane. The northbound right lane exiting the intersection is not used, as it is currently designated as a right turn lane into the closed, former, park-n-ride lot.
   Recommended Solution: Convert the right-most northbound lane into an acceptance lane for the westbound right turning traffic. This will enable the northbound approach traffic to only have to merge to two lanes instead of one, and the two lanes will be able to use the left and middle northbound lanes exiting the intersection. By doubling the northbound capacity in this manner, the back-ups will be significantly reduced.

7. **LeJeune Road and E 49 Street**
   Problem Found: Southbound traffic delays.
   Cause: The southbound left turn queue often backs up into the through lane, causing the southbound through traffic to suffer; and the right-most southbound lane is devoted to right turn traffic only.
   Recommended Solution: Lengthen the southbound left turn bay and change the southbound right turn lane to a combination right turn and through (straight) lane. By lengthening the southbound left turn bay and by allowing southbound through traffic to also use the right-most lane, southbound will flow much better.

8. **W 16 Avenue and W 49 Street**
   Problem Found: Southbound and eastbound traffic delays.
   Cause: The southbound left turn and eastbound left turn queues often back up into the through lanes, causing delays to the progress of the southbound and eastbound through traffic.
   Recommended Solution: Lengthen the southbound and eastbound left turn bays. By lengthening the bays, the queues are less likely to back up and the through traffic will flow more smoothly.

9. **Biscayne Boulevard (US-1) and NE 38 Street**
   Problem Found: Traffic must make northbound right turns too slowly, and trucks must swing wide to turn.
   Cause: The radius of curvature of the southeast corner is too small. Trucks making this turn have three problems: (1) they sometimes can't make the right turn without using a second approach lane, (2) they have to wait for westbound approach traffic to move out of the way, and (3) they cause backing up into US-1 half-way through the turn by having to make three-point right turns.
   Recommended Solution: Increase the corner radius using existing right of way. By increasing the radius of curvature of the corner, cars and trucks will be able to make the movement in one effort and at an appropriate speed. This will not only improve the northbound right turn flow, it will greatly benefit the flow of northbound through traffic on US-1.

10. **Galloway Road/NW 87 Avenue and NW 36 Street**
    Problem Found: Northbound and eastbound traffic delays.
    Cause: Northbound and eastbound left turning queues often back up into the through lanes, causing delays to the progress of the northbound and eastbound through traffic. Also, northbound right turning traffic has a traffic signal display that does not have a separate green display for right turns.

Recommended Solution: Lengthen one or both lanes of the dual-lane northbound and eastbound left turn bays and change the right-most northbound signal head from a standard 3-section (red, yellow and green) head to a 5-section head (adds green and yellow right arrows). By lengthening the bays, the queues are less likely to back up and the through traffic will flow more smoothly. Also, by modifying the northbound right turn movement's signal head, it can also receive a green arrow display at the same time as the westbound left turn, thereby reducing unnecessary stops and delays for the northbound right turn movement and almost doubling its capacity.

11. **NW 107 Avenue and NW 25 Street**
Problem Found: Northbound right turn traffic delays.
Cause: Through vehicles occasionally use the rightmost northbound lane and back up the northbound right turners while waiting for a green light.
Recommended Solution: Convert the right-most northbound approach lane from a combination through and right turn lane to a right turn-only lane and change the right-most northbound signal head from a standard 3-section (red, yellow and green) head to a 5-section head (adds green and yellow right arrows). By requiring all through (straight) drivers to use the second lane from the right and giving the right turners their own signal head, they can also receive a green arrow display at the same time as the westbound left turn, thereby reducing unnecessary stops and delays for the northbound right turn movement and almost doubling its capacity.

12. **Galloway Road/NW 87 Avenue and NW 13 Terrace**
Problem Found: North-south traffic delays.
Cause: The eastbound approach queue is squeezed into two lanes while there is an extra, unneeded westbound departure lane.
Recommended Solution: Convert one of the two westbound departure lanes into a third eastbound approach lane. By reversing the direction of this lane, the eastbound queue can be reduced by 33%, and therefore the eastbound green time can be reduced by 33%. As a result, this green time can be transferred to the north-south green time, thereby improving the north-south capacity and progression.

13. **SW 92 Avenue and Coral Way / SW 24 Street**
Problem Found: North-south traffic delays.
Cause: The heavy northbound and southbound right turn movements are each made from a single lane.
Recommended Solution: Widen the north and south legs and add northbound and southbound right turn only lanes. By modifying these north-south approach lane assignments, the intersection capacity can be significantly increased and the backups can be significantly decreased.

14. **Biscayne Boulevard/US-1 (Southbound) and NE 5 Street**
Problem Found: Eastbound traffic must slow down significantly upon entering the intersection and bend left sharply.
Cause: Sharp initial left bend must be made by eastbound traffic immediately upon entering the intersection, due to the northwest corner curb having a small radius. Trucks, of which there are many heading to the Port of Miami, must use more than one lane to do it. The risk of side-swiping collisions is great.
Recommended Solution: Increase the radius of curvature of the northwest corner. By increasing the radius of curvature of the corner, vehicles will be able to make the movement more efficiently staying in their lane. The eastbound green time can be shortened and, consequently, the north and southbound time can be increased, thereby improving north-south progression of vehicle flow.

15. **West Flagler Street and 79 Avenue**
Problem Found: Overall delay on all intersection legs.
Cause: All northbound through traffic must use the right-most lane, sharing it with the northbound right turn traffic, and creating a lane-use imbalance. This, in turn, necessitates giving northbound more green time than would otherwise be necessary.
Recommended Solution: Allow northbound through movements from the left lane in addition to the right lane. Allowing northbound thru traffic to also use the left-most lane will shorten the overall northbound queue length, enabling the northbound green time to be shorter, consequently allowing the east-west green time to be lengthened, thus improving east- west progression.

16. **West Flagler Street and 84 Avenue**
Problem Found: Overall delay on all intersection legs.
Cause: Parked cars reduce the capacity of the northbound approach to the intersection, increasing northbound delays, and requiring extra northbound green time.
Recommended Solution: Eliminating this on-street parking just south of the southeast corner will increase northbound capacity, reduce the duration of the red display for east-west traffic, and improve east-west progression.

17. **Bird Road/SW 42 Street and SW 127 Avenue**
Problem Found: Westbound traffic delays.
Cause: The westbound left turn queue backs up into the westbound thru lane and blocks it.
Recommended Solution: Extend the westbound left turn bay. By lengthening the bay, the left turn queue is less likely to back into the through lane and the through traffic is more likely to flow more smoothly.

18. **Bird Road/SW 42 Street and Turnpike/ SR-821 (Southbound)**
Problem Found: Overall delay on all intersection legs with significant southbound traffic delays.
Cause: The southbound queue is squeezed into three lanes.
Recommended Solution: By adding a fourth southbound approach lane, the capacity will be increased by 33%, the southbound green time required per cycle will be reduced accordingly, and the east-west green time can consequently be increased, thereby improving east-west progression.

19. **SW 67 Avenue/Ludlam Road and SW 56 Street/Miller Drive**
Problem Found: Eastbound traffic delays.
Cause: The eastbound left turn queue often backs up into the eastbound through lane, thereby impeding eastbound through flow.
Recommended Solution: By lengthening the eastbound left turn bay, the queue is less likely to back up into the thru lane and the thru movement is likely to be much smoother.

20. **SW 72 Avenue and SW 56 Street/Miller Drive**
Problem Found: Eastbound traffic delays.
Cause: The eastbound left turn queue often backs up into the eastbound through lane, thereby impeding eastbound through flow.
Recommended Solution: By lengthening the eastbound left turn bay, the queue is less likely to back up into the thru lane and the thru movement is likely to be much smoother.

21. SW 109 Court and SW 104 Street

Problem Found: Overall delay on all intersection legs.

Cause: There is only one wide, single lane of traffic on the northbound approach.

Recommended Solution: Re-stripe the northbound approach lane into two lanes. By creating a second lane, the northbound capacity will be almost doubled, the northbound green time can be almost halved, the east-west green time can be increased, and the east-west progression will improve.

22. SW 112 Avenue and SW 104 Street

Problem Found: Overall delay on all intersection legs.

Cause: Through vehicles use the rightmost northbound lane and back up the northbound right turners while waiting for a green light.

Recommended Solution: Change the right-most northbound signal head from a standard 3-section (red, yellow and green) head to a 5-section head (adds green and yellow right arrows). By giving the right turners their own signal head, they can also receive a green arrow display at the same time as the westbound left turn, thereby reducing unnecessary stops and delays for the northbound right turn movement and increasing its capacity. This will also reduce the amount of required northbound green time, thus increasing the amount of east-west green time per cycle, and improving east-west progression.

23. SW 122 Avenue and SW 120 Street

Problem Found: Overall delay on all intersection legs.

Cause: The heavy northbound right turn and southbound left turn movements are each made from a single lane.

Recommended Solution: Convert the right-most northbound approach lane to a right-turn-only lane and the middle southbound approach lane to a combined through and left turn lane. By modifying these north-south approach lane assignments, the intersection capacity can be significantly increased and the backups can be significantly decreased.

24. SW 117 Avenue and Coral Reef Drive/SW 152 Street at the Turnpike/SR-821

Problem Found: Significant eastbound left turn delays.

Cause: The traffic volumes are too great for a single eastbound left turn lane at SW 117 Avenue and SW 152 Street. To the east of this intersection, the eastbound right lane becomes a trap entrance lane to the Turnpike southbound, forcing eastbound traffic to merge into the middle lane.

Recommended Solution: Convert the left-most through lane into a second left turn lane. On the east side of the intersection, shift the two though lanes diagonally from the middle and right lane to the left and middle lane, which are the through lanes at the Turnpike underpass. The remainder of the right lane can then be converted into a right turn bay, and not impede through traffic.

25. Old Cutler Road, SW 220 Street, and SW 112 Avenue

Problem Found: Left turning vehicles conflict with pedestrian crossings.

Cause: The east-west left turns are made during the same phase of the signal cycle that the north and south side pedestrians walk, causing a frequent conflict.

Recommended Solution: Add east-west left turn lead arrows, to move most of the eastbound and westbound left turning traffic during a separate signal phase than the pedestrian walk phase, which will reduce the frequency of potential conflicts with pedestrians.

Attachment No. 2 – Arterial Roadways for Signal Re-Timing

1. Collins/Harding/Indian Creek between the Broward County Line and 5 Street
2. Biscayne Blvd. between the Broward County Line and NE 8 Street
3. NW/SW 27 Avenue between the Broward County Line and US-1
4. South Dixie Highway between I-95 and SW 220 Street
5. NW/SW 107 Avenue between NW 41 Street and SW 104 Street
6. NE/NW 103 Street between Okeechobee Road and NE 6 Avenue
7. W Flagler Street between W 118 and 6 Avenues
8. SW 8 Street between SW 137 Avenue and US-1
9. Bird Road between SW 137 Avenue and US-1
10. Kendall Drive between SW 157 Avenue and US-1